

VIDE ON CENTRE



Robotics for Horticulture: Balancing Performance and Cost

Brian Lynch



- AAFC Automation Cluster
- Three projects:
 - Robotic mushroom harvesting
 - Robotic greenhouse cucumber harvesting
 - Smart irrigation of greenhouse potted plants
- Approx. \$5M budget over five years
- Team of 15 engineers, scientists and students



- Target to reduce labour costs and improve productivity
- Success measured by impact on the horticulture industry
- Robotics and automation solutions meeting performance
 expectations with reasonable return-on-investment





• Fabrication and rapid prototyping capabilities



• Vineland's advantage: closing the design/testing loop



Systems

- Mobile platform
 - Traverses along rows
 - Autonomous transferring between rows
 - Carries sensor and harvesting systems
- Sensor system
 - Machine vision (colour, depth, hyperspectral, etc.)
 - Lidar
 - Identification and classification of cucumbers
- Harvesting system
 - Robotic arm(s) and gripper(s)
 - Reach, grip, cut and transfer cucumbers
- Autonomy
 - Data analysis, decision-making and task allocation

Challenges

- Challenges:
 - Identifying and classifying cucumber fruit
 - Reaching, grasping, cutting and transferring fruit
 - High-level decision-making





Progress

Computer vision



Progress

Robotics



Thank you

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